AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): Method for producing a workpiece~~, and, for example, a plate,~~ of steel which is resistant to abrasion and whose chemical composition comprises, by weight:

$$0.35\% \leq C \leq 0.8\%$$

$$0\% \leq Si \leq 2\%$$

$$0\% \leq Al \leq 2\%$$

$$0.35\% \leq Si + Al \leq 2\%$$

$$0\% \leq Mn \leq 2.5\%$$

$$0\% \leq Ni \leq 5\%$$

$$0\% \leq Cr \leq 5\%$$

$$0\% \leq Mo \leq 0.50\%$$

$$0\% \leq W \leq 1.00\%$$

$$0.1\% \leq Mo + W/2 \leq 0.50\%$$

$$0\% \leq B \leq 0.02\%$$

$$0\% \leq Ti \leq 2\%$$

$$0\% \leq Zr \leq 4\%$$

$$0.05\% \leq Ti + Zr/2 \leq 2\%$$

$$0\% \leq S \leq 0.15\%$$

$$N < 0.03\%$$

-     optionally from 0% to 1.5% of copper,

-     optionally at least one element selected from Nb, Ta and V at contents such that

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Nb/2 + Ta/4 + V $\leq$ 0.5%,

-        optionally at least one element selected from Se, Te, Ca, Bi, Pb at contents which are less than or equal to 0.1%,

the balance being iron and impurities resulting from the production operation, the chemical composition further complying with the following relationships:

$$0.1\% \leq C - Ti/4 - Zr/8 + 7xN/8 \leq 0.55\%$$

and:

$$Ti + Zr/2 - 7xN/2 \geq 0.05\%$$

and:

$$1.05xMn + 0.54xNi + 0.50xCr + 0.3x(Mo + W/2)^{1/2} + K > 1.8$$

with K = 0.5 if B $\geq$ 0.0005% and K = 0 if B < 0.0005%,

according to which the ~~plate~~ workpiece is subjected to a thermal quenching processing operation which is carried out in the heat for forming in the hot state ~~and, for example, rolling heat~~, or after austenitization by reheating in a furnace in order to carry out the quenching, the process comprising:

-        cooling the workpiece ~~or the plate is cooled~~ at a mean cooling rate greater than 0.5°C/s between a temperature greater than AC_3 and a temperature of from T = 800 – 270xC* – 90xMn –37xNi – 70XCr – 83x(Mo + W/2), with C* = C – Ti/4 – Zr/8 + 7xN/8, to T-50°C,

-        then cooling the workpiece ~~or the plate is then cooled~~ at a core cooling rate Vr < $1150xep^{-1.7}$ and greater than 0.1°C/s between the temperature T and 100°C, ep being the thickness of the plate expressed in mm,

-        cooling the workpiece ~~or the plate is cooled~~ as far as ambient temperature ~~and optionally planishing is carried out.~~

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2. (currently amended): Method according to claim 1, ~~characterized in that~~wherein:

$$1.05 \times Mn + 0.54 \times Ni + 0.50 \times Cr + 0.3 \times (Mo + W/2)^{1/2} + K > 2.$$

3. (currently amended): Method according to claim 1, ~~characterized in that~~wherein:

$$C > 0.45\%.$$

4. (currently amended): Method according to claim 1, ~~characterized in that~~wherein:

$$Si + Al > 0.5\%.$$

5. (currently amended): Method according to claim 1, ~~characterized in that~~wherein:

$$Ti + Zr/2 > 0.10\%.$$

6. (currently amended): Method according to claim 1, ~~characterized in that~~wherein:

$$Ti + Zr/2 > 0.30\%.$$

7. (currently amended): Method according to claim 1, ~~characterized in that~~wherein:

$$C^* \geq 0.22\%.$$

8. (currently amended): Method according to claim 1, ~~characterized in that~~wherein tempering is further carried out at a temperature which is less than or equal to 350°C.

9. (currently amended): Method according to claim 1, ~~characterized in that~~wherein, in order to add titanium to the steel, the liquid steel is placed in contact with a slag containing titanium and the titanium of the slag is caused to diffuse slowly in the liquid steel.

10-20. (canceled).

21. (new): Method according to claim 1, wherein the workpiece is a plate.

22. (new): Method according to claim 1, wherein the heat for forming in the hot state is a rolling heat.

23. (new): Method according to claim 1, further comprising carrying out planishing.